

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

AUSTRALIA
Patents Act 1990

AM 669-855B

NOTICE OF ENTITLEMENT

We **PEAUDOUCE**

of **59, RUE DE LA VIGNETTE**
F-59126 LINSELLES
FRANCE

being the applicant(s) and nominated person(s) in respect of an application for a patent for an invention entitled **NAPPY-PANTS EQUIPPED WITH LEAKTIGHT LATERAL POCKETS AND LEAKTIGHT WAISTBAND POCKETS** (Application No. 24747/92), state the following:

1. The nominated person(s) has/have, for the following reasons, gained entitlement from the actual inventor(s):

THE APPLICANT AND NOMINATED PERSON WOULD BE ENTITLED TO HAVE ASSIGNED TO IT A PATENT GRANTED TO THE ACTUAL INVENTORS IN RESPECT OF THIS INVENTION.

2. The nominated person(s) has/have, for the following reasons, gained entitlement from the applicant(s) listed in the declaration under Article 8 of the PCT:

THE APPLICANT AND NOMINATED PERSON IS THE BASIC APPLICANT.

3. The basic application(s) listed in the declaration under Article 8 of the PCT is/are the first application(s) made in a Convention country in respect of the invention.

DATED: 2 May 1996

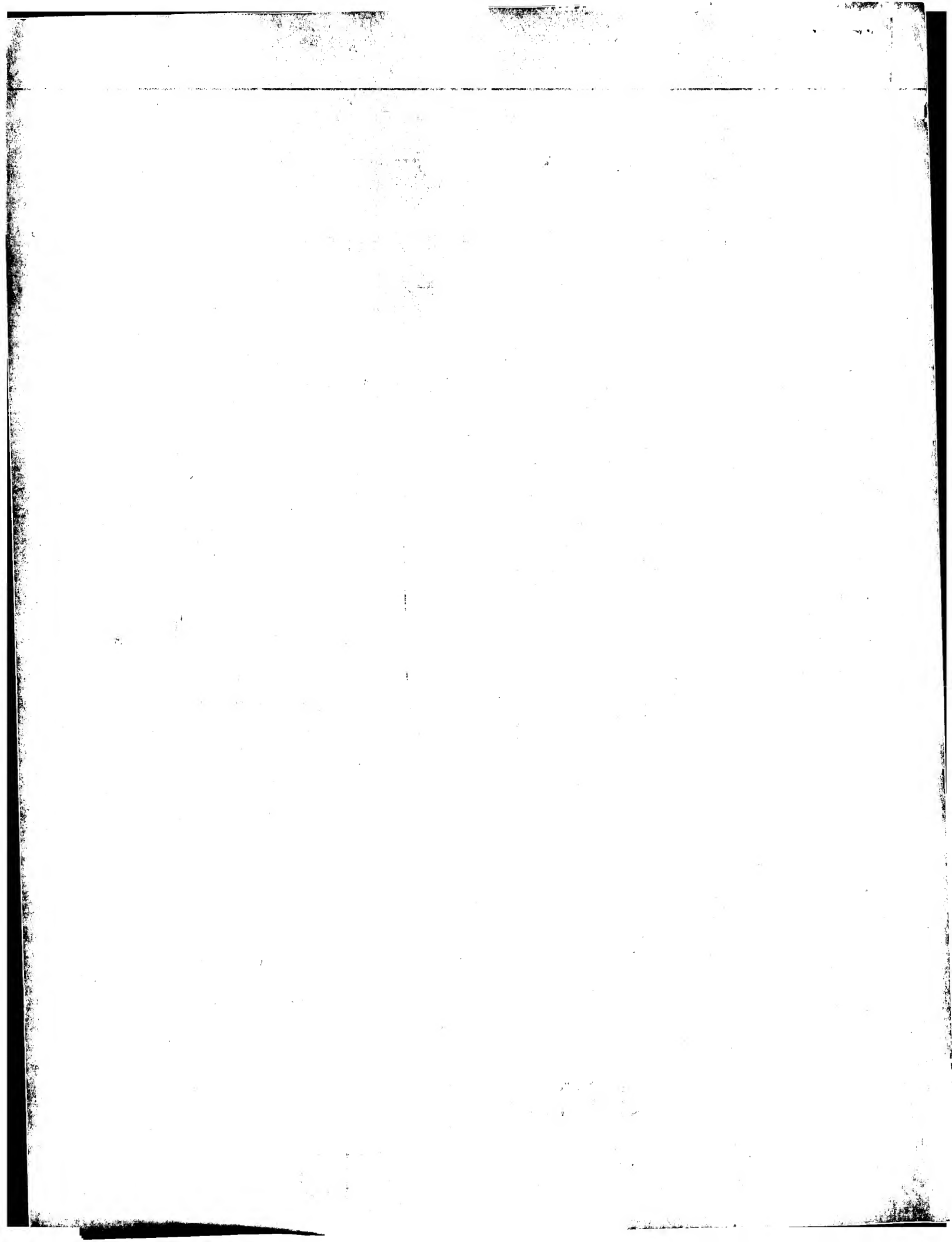
PEAUDOUCE

GRIFITH HADFIELD



Patent Attorney for and
on behalf of the applicant(s)

PEAU- F07 93-093677/A1 =AU 669855-B
Disposable nappy - has sealing strips along sides and ends of absorbent
pad to improve liq. retention while using less material in mfr.
PEAUDOUCE 91.08.14 91FR-010356
D22 P32 (96.06.27) *WO 9303698-A1 A61F 13/15
92.08.12 92AU-024747 Previous Publ. AU9224747-A Based on
WO9303698-A (Frn)





AU9224747

(12) PATENT ABRIDGMENT (11) Document No. AU-B-24747/92
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 669855

(54) Title
DIAPER PROVIDED LIQUID-TIGHT SIDE POCKETS AND LIQUID-TIGHT WAIST POCKETS

International Patent Classification(s)
(51)⁵ A61F 013/15

(21) Application No. : 24747/92

(22) Application Date : 12.08.92

(87) PCT Publication Number : WO93/03698

(30) Priority Data

(31) Number	(32) Date	(33) Country
91 10356	14.08.91	FR FRANCE

(43) Publication Date : 16.03.93

(44) Publication Date of Accepted Application : 27.06.96

(71) Applicant(s)
PEAUDOUCE

(72) Inventor(s)
ANDRE LEROY; BERNARD DELEU; ALAIN NAZE

(74) Attorney or Agent
GRIFFITH: HACK & CO, GPO Box 1285K, MELBOURNE VIC 3001

(56) Prior Art Documents
DE 871731
EP 263720
FR 2231329

(57) Claim

1. Nappy-pants for small children or incontinent adults, of the type comprising an outer sheet (1) which is impermeable to liquids, of general elongated shape, equipped with a front part and with a rear part, capable of receiving an absorbent pad (2), also of general elongated shape, placed on the impermeable sheet, it being possible for the pad to be covered with an inner sheet (3) which is permeable to liquids, the assembly being shaped so as to leave, on each lateral side of the nappy-pants, an indentation for the passage of the legs, and adhesive fastening devices (7) being provided in the vicinity of the lateral edges of the rear part of the impermeable sheet, characterised in that the impermeable outer sheet (1) has substantially the same width over the entire length of the nappy-pants; two lateral leaktight barriers formed from strips (9) of material which is permeable or impermeable to liquids, equipped with at least one elastic element (10) fixed in the stretched state in the vicinity of their edge directed towards the axis of the nappy-pants, are provided on each side over

(11) AU-B-24747/92
(10) 669855

-2-

the length of the nappy-pants so as to be located inside the marginal zones of the absorbent pad (2), forming lateral leaktight pockets; two transverse strips (12, 17) which are impermeable to liquids are fixed to the outer sheet (1) which is impermeable to liquids and/or to the inner sheet (3) which is permeable to liquids, in the zones, respectively, of the front part and of the rear part of the said impermeable outer sheet, so as to form waistband leaktight pockets, the said strips having transverse dimensions greater than the width of the impermeable outer sheet; the assembly constituting lateral passages for the legs suitably indented and made leaktight.



AU9224747

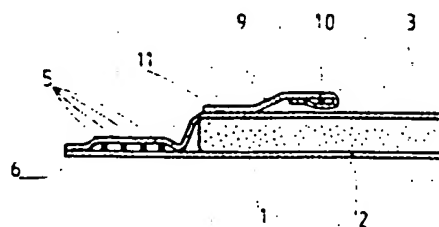
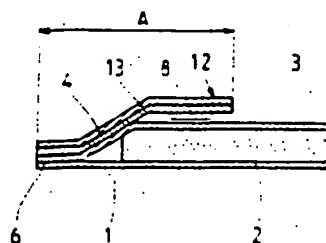
DEMANDE INTERNATIONALE

IS (PCT)

(51) Classification internationale des brevets ⁵ : A61F 13/15		(11) Numéro de publication internationale: WO 93/03698
A1		(43) Date de publication internationale: 4 mars 1993 (04.03.93)
(21) Numéro de la demande internationale: PCT/FR92/00789		(74) Mandataire: BUREAU D.A. CASALONGA-JOSSE; 8, avenue Percier, F-75008 Paris (FR).
(22) Date de dépôt international: 12 août 1992 (12.08.92)		(81) Etats désignés: AU, CA, CS, FI, HU, JP, NO, RU, US, brevet européen (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE).
(30) Données relatives à la priorité: 91/10356 14 août 1991 (14.08.91) FR		Publiée <i>Avec rapport de recherche internationale.</i>
(71) Déposant (pour tous les Etats désignés sauf US): PEAU-DOUCE [FR/FR]; 59, rue de la Vignette, F-59126 Linselles (FR).		669855
(72) Inventeurs; et		
(75) Inventeurs/Déposants (US seulement): LEROY, André [FR/FR]; 1, allée des Glycines, F-59420 Mouvaux (FR). DELEU, Bernard [FR/FR]; 6, rue Jules-Massenet, F-59126 Linselles (FR). NAZE, Alain [FR/BE]; 44, chaussée de la Garde-Dieu, B-7791 Bas-Warleton (BE).		

(54) Title: **DIAPER PROVIDED LIQUID-TIGHT SIDE POCKETS AND LIQUID-TIGHT WAIST POCKETS**

(54) Titre: **COUCHE-CULOTTE MUNIE DE POCHEs LATÉRALES D'ÉTANCHEITÉ ET DE POCHEs DE CEINTURE D'ÉTANCHEITÉ**



(57) Abstract

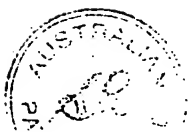
Diaper comprising an external sheet (1) impervious to liquids having a general elongate shape and provided with a front part and a back part, an absorbing mattress (2) having also a generally elongate shape, and an internal sheet (3) permeable to liquids. The external sheet (1) has substantially the same width throughout the length of the diaper. Two sealing side barriers formed by bands (9) of material permeable or impervious to liquids, provided with an elastic element (10) at the vicinity of their edge directed towards the axes of the diaper are provided on either side on the length of the diaper while forming liquid-tight side pockets. Two transverse liquid-repellent bands (12) are fixed to the internal sheet (3) in the front part and in the back part so as to form liquid-repellent waist pockets, said bands having dimensions in the transverse direction which are larger than the width of the external impervious sheet and carrying adhesive fastening devices (7).

Nappy-pants equipped with leaktight lateral pockets and leaktight waistband pockets.

5 The present invention relates to nappy-pants for small children or incontinent adults, of the type comprising an outer sheet which is impermeable to liquids, capable of receiving an absorbent pad, the assembly being shaped so as to leave an indentation on each lateral side of the nappy-pants for the passage of the legs.

10 Nappy-pants of this type are already known and are mass produced continuously from a continuous film of synthetic material, for example made from thin polyethylene, which is unwound from a reel and coated with lines or strips of adhesive of the hot-melt type.
15 Individual absorbent pads are deposited at intervals on the continuous film. A continuous strip of permeable material, for example a nonwoven, is then applied over the film of impermeable synthetic material and over the absorbent pads so as to adhere to the said impermeable sheet at least along its longitudinal edges. Longitudinal
20 elastic elements are deposited and fixed in the stretched state on the continuous film of impermeable synthetic material or on the strip of permeable material made from nonwoven on each side of the longitudinal edges of the
25 absorbent pad in the crotch zone. Cutouts are then made in the assembly thus formed in the crotch zone in order to give an anatomical shape to the nappy-pants, yet still retaining, in the front and rear parts thereof, a width which is much greater than that of the corresponding
30 front and rear parts of the absorbent pad.

In certain cases, it is also possible not to fix the individual absorbent pads permanently by means of adhesive bonding onto the continuous film of impermeable synthetic material but, rather, to construct the nappy-pants in the form of a reusable envelope inside which an
35 insert, in the form of an absorbent element which can be disposed of after use, may then be inserted.



In all cases, these known methods and products have the drawback of requiring considerable wasteful consumption of raw materials forming the outer impermeable sheet of the nappy-pants, as well as, 5 optionally, the inner permeable sheet due to losses caused by the cutouts made in the crotch zone in order to form passages for the legs adapted to the anatomy of the wearer.

In certain nappy-pants of known type, as 10 described, for example, in French Patent Application 2,231,329 (STILLE-WERNER), the cutouts for the passage of the legs are avoided but this results in poor leaktightness at the location of these passages.

The aim of the invention is thus to solve the 15 problems of the prior art and, in particular, to permit the construction of lateral passages for the legs which are both suitably indented and rendered perfectly liquid-tight.

The invention thus permits a considerable 20 reduction in the consumption of raw material encountered in most conventional methods for manufacturing nappy-pants, thus reducing the cost price of these products while ensuring excellent leaktightness, particularly at the location of the lateral passages for the legs.

25 The nappy-pants for small children or incontinent adults according to the invention is of the type comprising an outer sheet which is impermeable to liquids, of general elongated shape, equipped with a front part and with a rear part. The impermeable sheet is 30 capable of receiving an absorbent pad, also of general elongated shape, placed on the impermeable sheet, it being possible for the absorbent pad to be covered with an inner sheet which is permeable to liquids. The assembly is shaped so as to leave, on each lateral side 35 of the nappy-pants, an indentation for the passage of the legs. Adhesive fastening devices may also be provided in the vicinity of the lateral edges of the rear part of the permeable sheet.



The invention comprises a combination of the following characteristics:

5 The impermeable outer sheet has substantially the same width over the entire length of the nappy-pants. Two lateral leaktight barriers, formed from strips of material which is permeable or impermeable to liquids, equipped with at least one elastic element in the vicinity of their edge directed towards the axis of the nappy-pants, are provided on each side over the length of
10 the nappy-pants so as to be located inside the marginal zones of the absorbent pad, forming lateral leaktight pockets. Two transverse strips which are impermeable to liquids are fixed to the outer sheet which is impermeable to liquids and/or to the inner sheet which is permeable to liquids in the zones, respectively, of the front part
15 and of the rear part of the said impermeable outer sheet. The two transverse strips have transverse dimensions which are greater than the width of the impermeable outer sheet.

20 Under these conditions, the assembly formed, in particular by the impermeable outer sheet and the two transverse strips of greater width, constitutes lateral passages for the legs which are suitably indented. Lateral leaktightness is completely ensured by the two
25 lateral leaktight barriers forming leaktight pockets.

The transverse strips which are impermeable to liquids preferably comprise at least one elasticated transverse portion. They thus constitute impermeable front and rear transverse barriers and elastic waistband
30 portions for the nappy-pants.

The longitudinal edges of the impermeable sheet may, in an advantageous embodiment, be folded up into a Z on each side of the absorbent pad over the length of the nappy-pants. The two lateral leaktight barriers may
35 then be fixed to the longitudinal edges of the impermeable sheet on the folded-up portion located substantially in the same plane as the inner face of the absorbent pad. Such a fixing of the lateral leaktight



barriers makes it possible considerably to increase their efficiency by improving the contact of the said leaktight barriers with the thighs of the wearer of the nappy-pants.

5 Preferably, one or more longitudinal elastic elements is/are fixed in the stretched state on the longitudinal edges of the impermeable sheet, at least in the zone of the lateral passages for the legs, on each side of the absorbent pad, so as to improve the fit of
10 the nappy-pants with respect to the anatomy of the wearer while contributing to lateral leaktightness.

 In certain embodiments, the absorbent pad may be fixed permanently on the internal face of the impermeable outer sheet, being enclosed between the latter and a
15 permeable inner sheet.

 The lateral leaktight barriers may be fixed advantageously on the inner face of the permeable sheet in the vicinity of the longitudinal edges of the absorbent pad.

20 In a variant, permitting the formation of double leaktight pockets, the two lateral leaktight barriers are fixed in their central zones, each of their free edges having an elastic element. Each lateral leaktight barrier thus forms a double leaktight pocket in the vicinity of
25 the corresponding longitudinal edge of the absorbent pad.

 In other embodiments, the absorbent pad may simply be inserted in a removable manner inside a reusable envelope constituted by the impermeable outer sheet, the two lateral leaktight barriers and the two
30 impermeable transverse strips. In order to produce such an envelope, it is preferable for the longitudinal edges of the impermeable sheet to be folded up into a Z, as was indicated above.

35 In all cases, the adhesive fastening devices are advantageously fixed directly onto the transverse strip located in the zone of the rear part of the impermeable outer sheet.



The invention will be better understood by studying a number of embodiments taken by way of examples which are in no way limiting and are illustrated by the appended drawings, in which:

5 Figure 1 is a plan view with certain parts cut away of a first embodiment of nappy-pants according to the invention;

 Figures 2, 3 and 4 are sectional views taken, respectively, along the sectional lines II-II, III-III
10 and IV-IV in Figure 1;

 Figure 5 is a plan view with parts cut away of an alternative embodiment;

 Figures 6 and 7 are sectional views along, respectively, sectional lines VI-VI and VII-VII in
15 Figure 5;

 Figure 8 is a plan view with partial cutaway of a second embodiment of nappy-pants according to the invention;

 Figures 9, 10 and 11 are sectional views along
20 sectional lines IX-IX, X-X and XI-XI in Figure 8;

 Figure 12 is a plan view with partial cutaway of a third embodiment of nappy-pants according to the invention, comprising a reusable impermeable envelope and an absorbent pad inserted inside the said envelope; and

25 Figures 13, 14 and 15 are sectional views along sectional lines XIII-XIII, XIV-XIV and XV-XV in Figure 12.

 As illustrated in Figures 1 to 4, the nappy-pants according to the invention comprise an outer sheet 1
30 which is impermeable to liquids produced, for example, from polyethylene and which has been obtained from a continuous film of synthetic material of a width smaller than the width of the finished nappy-pants, the difference in width being equal to $2\Delta l$. The width of the
35 sheet 1 is, however, sufficient to slightly exceed the transverse dimensions of the front and rear end edges of the absorbent pad 2, the front edge 2a being located in the lower part of Figure 1 whilst the rear edge 2b is



located in the upper part of Figure 1. A continuous strip 3 of permeable material of a width equal to or slightly smaller than that of the film 1 is adhesively bonded onto the inner face of the said film after a succession of absorbent pads 2, arranged at uniform intervals, has been fixed by adhesive bonding onto to said film 1. Under these conditions, it will be understood that the adhesive bonding of the strip 3 of permeable material takes place right round the various absorbent pads 2 in the zones 6 of the film 1.

Lateral leaktight barriers 9, also visible in Figure 3, are formed from strips of permeable material, for example made from a nonwoven material equipped with an elastic element 10 in the vicinity of their borders located towards the longitudinal axis of the nappy-pants. As may be seen in Figure 3, the elastic element 10 is enclosed in a folded-up border of the lateral leaktight barrier 9 and fixed in the stretched state inside this border and over at least a part of its length, for example by means of a hot adhesive coating the elastic element on its periphery. The elastic element may be produced in the form of a strand or of a thin filament made from rubber or the like or, alternatively, from an elastic narrow band. Generally, use will be made, for the elastic elements 10, of the same materials and the same shape as for the lateral elastic elements 5 described below. The lateral leaktight barriers 9 are deposited during manufacture on the permeable inner sheet 3, that is to say on the inner side of the latter, and fixed on the said permeable sheet 3 by means of at least one continuous longitudinal adhesive line 11 in the vicinity of the longitudinal edges of the absorbent pad 2. As may be seen in Figure 3, the adhesive line 11 is located above, that is to say towards the inside of the absorbent pad 2 in the vicinity of its longitudinal edge. The lateral leaktight barriers 9, equipped with their elastic element 10, are thus capable of forming leaktight pockets on the longitudinal edges of the absorbent pad 2.



In a subsequent stage of manufacture, transverse strips 12 are deposited at uniform intervals perpendicularly to the direction of manufacture of the nappy-pants and above the continuous strip 3 of permeable material and the longitudinal ends of the lateral leak-tight barriers 9. The transverse strips 12 have transverse dimensions, relative to the longitudinal axis of the nappy-pants, which are greater by 2:1 than the width of the film 1 of synthetic material. The transverse strip 12 is arranged in a symmetrical manner so as to leave a portion of width 11 remaining on each side, as may be seen in Figure 1. The length, in the direction of manufacture, of the transverse strip 12 is equal to 2A, A the being the distance separating the transverse edge of the nappy-pants subsequently manufactured from a zone located above an absorbent pad 2 close to its transverse edge substantially covering over the respective front and rear parts 2a, 2b.

The transverse strips 12 may consist of a composite material which is impermeable to liquids and elasticated over at least a part of its length. By way of example, Figure 2 shows an impermeable transverse strip 12 comprising, successively from the inside towards the outside, a strip 4 of nonwoven which is permeable to liquids, an impermeable polyethylene film 13 and an elastic element 8 as a strip intended to constitute an elasticated waistband portion for the nappy-pants after manufacture.

The impermeable transverse strips 12 are fixed to the continuous permeable strip 3 and/or to the impermeable film 1 of synthetic material by any means, such as adhesive bonding, heat sealing or the like.

A plurality of elastic elements 5 consisting, for example, of parallel thin filaments or strands, which are four in number in the example illustrated, are fixed in the stretched state parallel to one another on each side of the absorbent pad 2 in the marginal zones 6 of the continuous impermeable film 1. Such strands or filaments



may, for example, have a substantially circular section and preferably have characteristics of considerable extension of the order of 300 to 400%. They may be produced from rubber or from any other suitable material.

5 Fixing preferably takes place by coating the strands over their entire periphery with a hot liquid adhesive. It is also possible to replace these strands by elastic narrow bands placed parallel and fixed by coating with hot liquid adhesive on one or on both faces. Such narrow
10 bands generally have an extension of 100 to 200%. In all cases, the adhesive bonding of the elastic element takes place solely in the central zone of the nappy-pants corresponding substantially to the lateral indentations for the passage of the legs, the portions of the elastic
15 elements which subsequently correspond to their ends not being adhesively bonded.

In the example illustrated in Figure 1, a cutout 14 has also been made in each of the lateral edges of the assembly thus formed, in the zone intended subsequently
20 to constitute the lateral passages for the legs of the nappy-pants, in order to improve the anatomical fit thereof. These cutouts 14 are made in the film 1, the strip 3 and the transverse strips 12. The parts of material which are removed have been shown as cross-hatching in Figure 1. Compared with the manufacture of
25 conventional nappy-pants, in which the continuous film 1 has the final width of the nappy-pants, it appears that the method of the invention makes it possible to achieve a substantial saving in terms of raw materials both as
30 regards the impermeable film generally made from polyethylene and the permeable sheet generally made from nonwoven. The surface area saved is nearly 2:1 x the crotch length, for each one of the nappy-pants produced.

The last stage of manufacture consists in transversely cutting out the continuous composite structure
35 thus obtained in order to form a succession of individual nappy-pants. Cutting-out takes place in the zone located between two successive absorbent pads 2 thus separating



each transverse strip 12 into two equal parts of length A located, as shown in Figure 1, in the respective zones of the front part 2a and the rear part 2b of the absorbent pad and of the impermeable outer sheet 1. During this operation, the ends which are not adhesively bonded of the elastic elements 5 are generally retracted inside the elements of the nappy-pants.

The nappy-pants obtained are provided, in their front and rear end zones, with elasticated transverse leaktight barriers constituted by the transverse strips 12 equipped with elasticated zones 8 which form, as it were, waistband leaktight pockets. As may indeed be noted in Figure 2, the free transverse edge of the transverse strip 12 located above the absorbent pad 2 effectively forms a waistband leaktight pocket of width A.

It will be observed that the adhesive fasteners 7 are fixed directly onto the transverse strip 12 corresponding to the rear part of the nappy-pants.

Moreover, an examination of Figure 3 shows that the nappy-pants also comprise lateral leaktight pockets constituted by the elasticated barriers 9 whose free edges are also located above the absorbent pad 2, that is to say on its inner-face side.

Nappy-pants are thus obtained which can not only be manufactured at a reduced cost but which also have improved leaktight characteristics.

The variant illustrated in Figures 5 to 7 differs from that in Figures 1 to 4 principally in the use of lateral leaktight barriers 15 fixed in their central zone by a longitudinal adhesive zone 16 so as to form a leaktight pocket 15a, 15b on each side of the said central zone. The leaktight pocket 15b is directed towards the longitudinal axis of the nappy-pants whilst the leaktight pocket 15a is directed in the opposite direction. Under these conditions, each lateral leaktight barrier 15 constitutes a double leaktight pocket equipped each time with at least one elastic element 10. The pockets 15a and 15b may have the same width but,



preferably, the inner pocket 15b may be narrower than the outer pocket 15a. Moreover, by fixing several elastic elements onto the free edge of the leaktight pocket 15a, it is possible to cut down or dispense with the elastic elements 5 on the impermeable sheet 1.

It will also be noted that, in the example illustrated, the absorbent pad 2 has a rectangular shape unlike the hourglass shape illustrated in the variant in Figure 1.

Naturally, any other shape of absorbent pad could be envisaged.

The other elements which are identical to the preceding variant bear the same reference numbers.

In Figures 8 to 11, which illustrate another embodiment of the invention, the parts which are similar also bear the same reference numbers.

In this embodiment, the nappy-pants comprise an outer sheet 1 which is impermeable to liquids produced, for example, from polyethylene, of general rectangular shape and whose longitudinal edges have been folded up into a Z along the longitudinal edges of the absorbent pad 2 which has, for example, a general rectangular shape. The folding-up into a Z has a first part 1a substantially in the same plane as the outer face of the absorbent pad 2, a folded-up part 1b and a part 1c located substantially in the same plane as the inner face of the absorbent pad or slightly above the said face, as illustrated in Figure 11. The folded-up portion 1b is fixed to the edge of the absorbent pad 2 on the permeable inner sheet 3.

Crotch longitudinal elastic members 5 have been fixed in the stretched state and parallel to each other onto the longitudinal edges of the permeable outer sheet 1 and are thus located, after the latter has been folded up into a Z, on the folded-up portion 1c which is substantially in the same plane as the inner face of the absorbent pad, as may be seen in Figure 11.



The nappy-pants also comprise lateral leaktight barriers 9 equipped, as previously, with elastic elements 10 produced in the form of strips, for example in hydrophilic or hydrophobic nonwoven. These strips are fixed at least via their end longitudinal edge opposite the longitudinal axis of the nappy-pants onto the portion 1c of the Z-fold. The elastic element 10 is arranged opposite towards the longitudinal axis of the nappy-pants above, that is to say towards the inside of, the absorbent pad 2 so as to cause the opening and the recovery of the leaktight barriers 9 thus forming leaktight pockets when the nappy-pants are worn by the wearer.

It is appropriate to note that the fixing of the leaktight barriers 9 onto the folded-up portions 1c of the impermeable outer sheet 1 makes it possible to increase the efficiency of the leaktight pockets by improving the contact of these elements with the thighs of the wearer of the nappy-pants.

The nappy-pants of this embodiment are also provided with elasticated transverse leaktight barriers 17 placed in the waistband zones of the nappy-pants, that is to say on its front and rear end parts. As in the preceding embodiment, the barriers 17 have dimensions greater in terms of length than the transverse width of the impermeable outer sheet 1 after the folding-up into a Z of its longitudinal edges. The width, in the longitudinal direction of the nappy-pants, of the barriers 17 is sufficient to cover the transverse edges of the absorbent pad 2. As may be seen in Figure 9, the barriers 17 are fixed on the inner sheet 3 which is permeable to liquids as well as on the longitudinal ends of the lateral leaktight barriers 9 by means of adhesive bonding or any other appropriate means.

The leaktight barriers 17 may consist of a rectangular strip of a composite material which is impermeable to liquids and elasticated over at least a part of its surface in the transverse direction of the



nappy-pants. As may be seen in Figure 9, in the example illustrated the leaktight barrier 17 comprises successively from the inside towards the outside a strip 18 of nonwoven which is permeable to liquids, a film 19 of polyethylene and a strip-type elastic element 20. The leaktight barrier 17, located on the rear portion of the nappy-pants, is also equipped with adhesive fasteners 7 for closure of the nappy-pants.

In the embodiment illustrated in Figures 12 to 15, in which similar elements bear the same reference numbers, the nappy-pants consist of an envelope formed by an outer sheet 1 which is impermeable to liquids, for example made from polyethylene, whose longitudinal edges have been folded up into a Z, as in the embodiment in Figures 8 to 11, having, as before the parts 1a, 1b and 1c. The folding-up into a Z in this case forms a bowl adapted in order to receive an insert composed, for example, of an absorbent pad 2 of rectangular shape enclosed in a web 3 which is permeable to liquids, produced, for example, from nonwoven. Longitudinal elastic members 5 have been fixed in the stretched state parallel to each other onto the edges of the impermeable outer sheet 1, on the folded-up part 1c, located substantially in the same plane as the inner face of the absorbent pad 2, as may be seen in Figure 15. The lateral leaktight barriers 9 have the same structure and are arranged in the same manner as in the embodiment in Figures 8 to 11, the elastic element 10 causing the opening and the recovery of the barriers 9 so as to form leaktight pockets.

The envelope is also provided with transverse leaktight barriers 17 on its front and rear end parts. These barriers 17 have the same structure and are arranged in the same manner as in the embodiment in Figures 8 to 11. They are also fixed at the periphery of the envelope by means of adhesive bonding, heat sealing or any other appropriate means. The leaktight barriers 17 may consist of a composite material comprising, for



example, successively from the inside towards the outside, a strip 18 of nonwoven which is permeable to liquids and an impermeable film 19 of polyethylene.

5 In the example illustrated, no waistband elastic element is provided, although this could be added.

Nappy-pants are thus obtained in the form of a reusable envelope which may easily be provided with a disposable absorbent element. The latter may also be provided with fixing elements of the self-adhesive type,
10 not illustrated in the figure, in order to reinforce its holding inside the envelope.

As in the preceding embodiments, both excellent transverse leaktightness, particularly in the crotch zone, as well as good longitudinal leaktightness, in the
15 waistband zone are obtained, while still permitting a considerable reduction in manufacturing costs by virtue of the substantial savings in raw materials, particularly polyethylene and nonwoven, which are produced in the crotch zone when compared with a manufacturing method of
20 conventional type.



CLAIMS

1. Nappy-pants for small children or incontinent adults, of the type comprising an outer sheet (1) which is impermeable to liquids, of general elongated shape, equipped with a front part and with a rear part, capable of receiving an absorbent pad (2), also of general elongated shape, placed on the impermeable sheet, it being possible for the pad to be covered with an inner sheet (3) which is permeable to liquids, the assembly being shaped so as to leave, on each lateral side of the nappy-pants, an indentation for the passage of the legs, and adhesive fastening devices (7) being provided in the vicinity of the lateral edges of the rear part of the impermeable sheet, characterised in that the impermeable outer sheet (1) has substantially the same width over the entire length of the nappy-pants; two lateral leaktight barriers formed from strips (9) of material which is permeable or impermeable to liquids, equipped with at least one elastic element (10) fixed in the stretched state in the vicinity of their edge directed towards the axis of the nappy-pants, are provided on each side over the length of the nappy-pants so as to be located inside the marginal zones of the absorbent pad (2), forming lateral leaktight pockets; two transverse strips (12, 17) which are impermeable to liquids are fixed to the outer sheet (1) which is impermeable to liquids and/or to the inner sheet (3) which is permeable to liquids, in the zones, respectively, of the front part and of the rear part of the said impermeable outer sheet, so as to form waistband leaktight pockets, the said strips having transverse dimensions greater than the width of the impermeable outer sheet; the assembly constituting lateral passages for the legs suitably indented and made leaktight.
2. Nappy-pants according to Claim 1, characterised in that the transverse strips which are impermeable to liquids comprise at least one elasticated transverse portion (8, 20).



3. Nappy-pants according to Claim 1 or 2, characterised in that the longitudinal edges of the impermeable sheet are folded up into a Z (1a, 1b, 1c) on each side of the absorbent pad (2) and over the length of the nappy-pants, the two lateral leaktight barriers (9) being fixed to the longitudinal edges of the impermeable sheet on the folded-up portion (1c) located substantially in the same plane as the inner face of the absorbent pad (2).

4. Nappy-pants according to any one of the preceding claims, characterised in that one or more longitudinal elastic elements (5) is/are fixed in the stretched state on the longitudinal edges of the impermeable sheet (1), at least in the zone of the lateral passages for the legs, on each side of the absorbent pad (2).

5. Nappy-pants according to any one of the preceding claims, characterised in that the absorbent pad (2) is fixed permanently on the internal face of the impermeable outer sheet (1), being enclosed between the latter and a permeable inner sheet (3).

6. Nappy-pants according to Claim 5, characterised in that the two lateral leaktight barriers (9) are fixed on the inner face of the permeable sheet in the vicinity of the longitudinal edges of the absorbent pad (2).

7. Nappy-pants according to Claim 6, characterised in that the two lateral leaktight barriers (15) are fixed in their central zone (16), each of their free edges having an elastic element so as to form two double leaktight pockets in the vicinity of each longitudinal edge of the absorbent pad (2).

8. Nappy-pants according to any one of Claims 5 to 7, characterised in that the longitudinal edges of the impermeable sheet have cutouts (14) in the zone of the lateral passages for the legs in order to improve the fit with respect to the body.

9. Nappy-pants according to Claim 3, characterised in that the absorbent pad (2) may be inserted in a removable manner inside a reusable envelope constituted



ABSTRACT

Nappy-pants equipped with leaktight lateral pockets and leaktight waistband pockets.

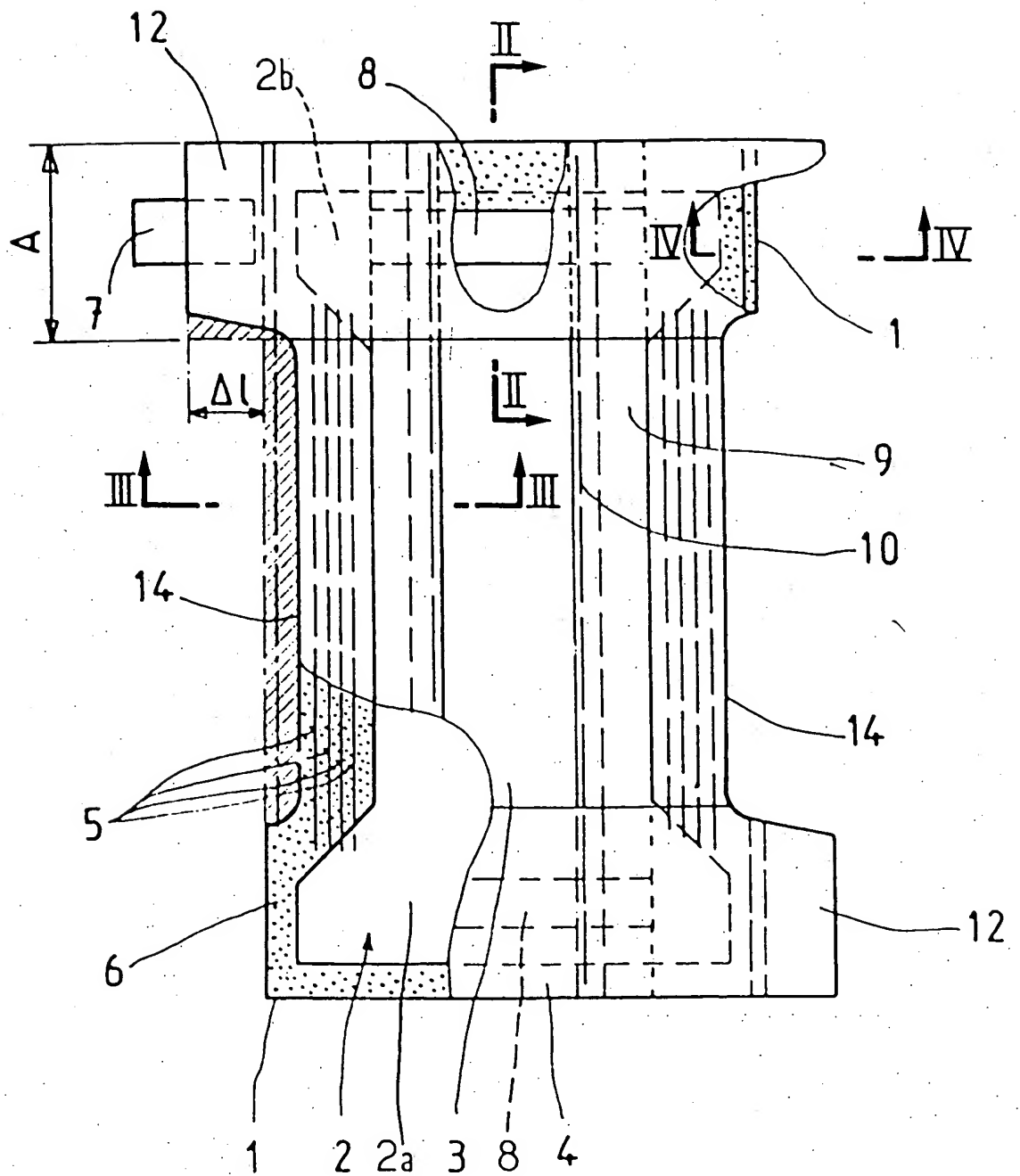
Nappy-pants comprising an outer sheet (1) which is impermeable to liquids, of general elongated shape, equipped with a front part and a rear part, an absorbent pad (2), also of general elongated shape, and an inner sheet (3) which is permeable to liquids.

The outer sheet (1) has substantially the same width over the entire length of the nappy-pants. Two lateral leaktight barriers formed from strips (9) of material which is permeable or impermeable to liquids, equipped with an elastic element (10) in the vicinity of their edge directed towards the axis of the nappy-pants, are provided on each side over the length of the nappy-pants, forming lateral leaktight pockets. Two transverse strips (12) which are impermeable to liquids are fixed to the inner sheet (3), in the front part and the rear part, so as to form waistband leaktight pockets, the said strips having transverse dimensions greater than the width of the impermeable outer sheet and carrying adhesive fastening devices (7).

Reference: Figure 1.



FIG.1



2/8

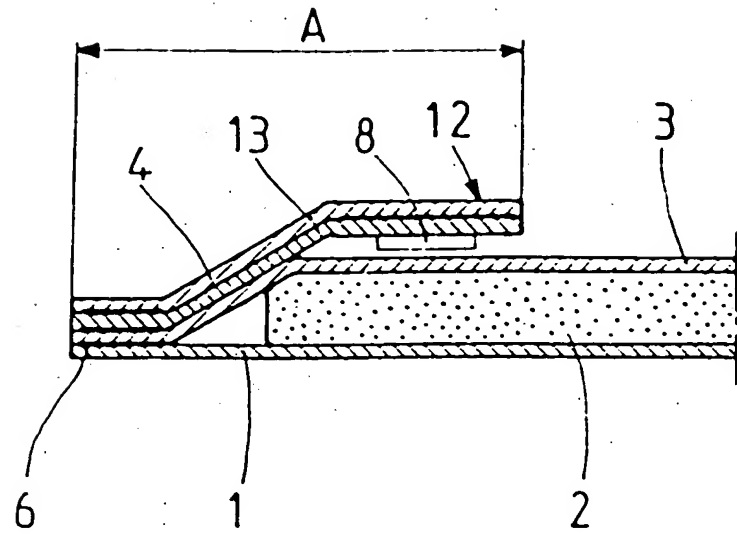
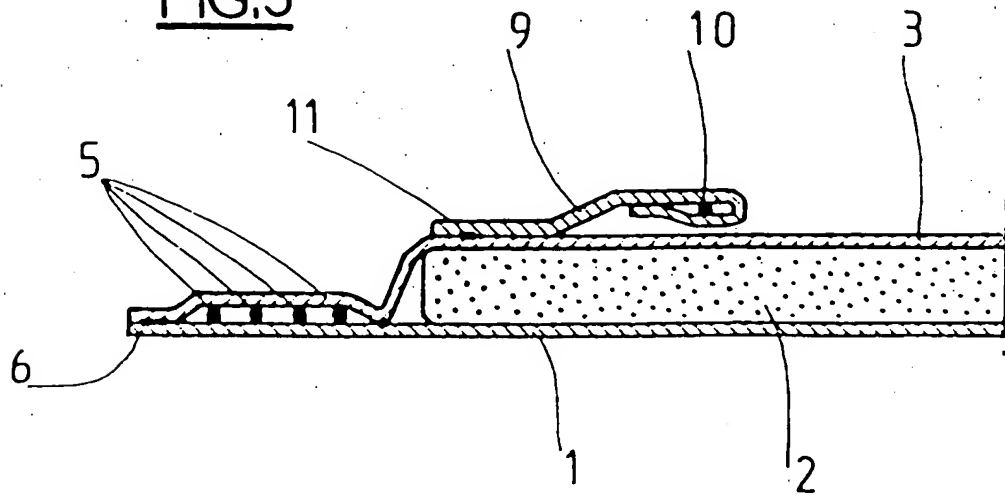
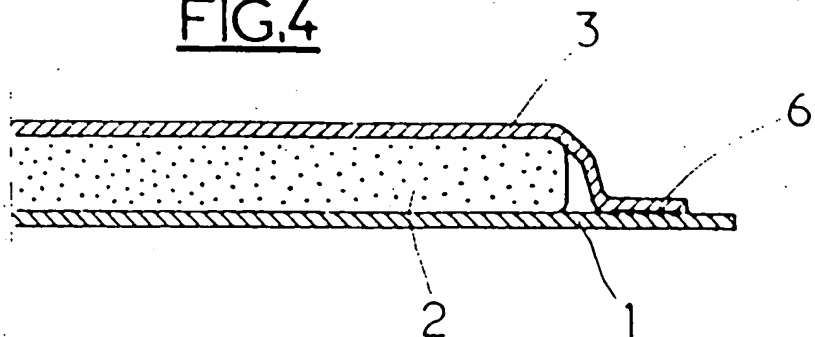
FIG.2FIG.3FIG.4

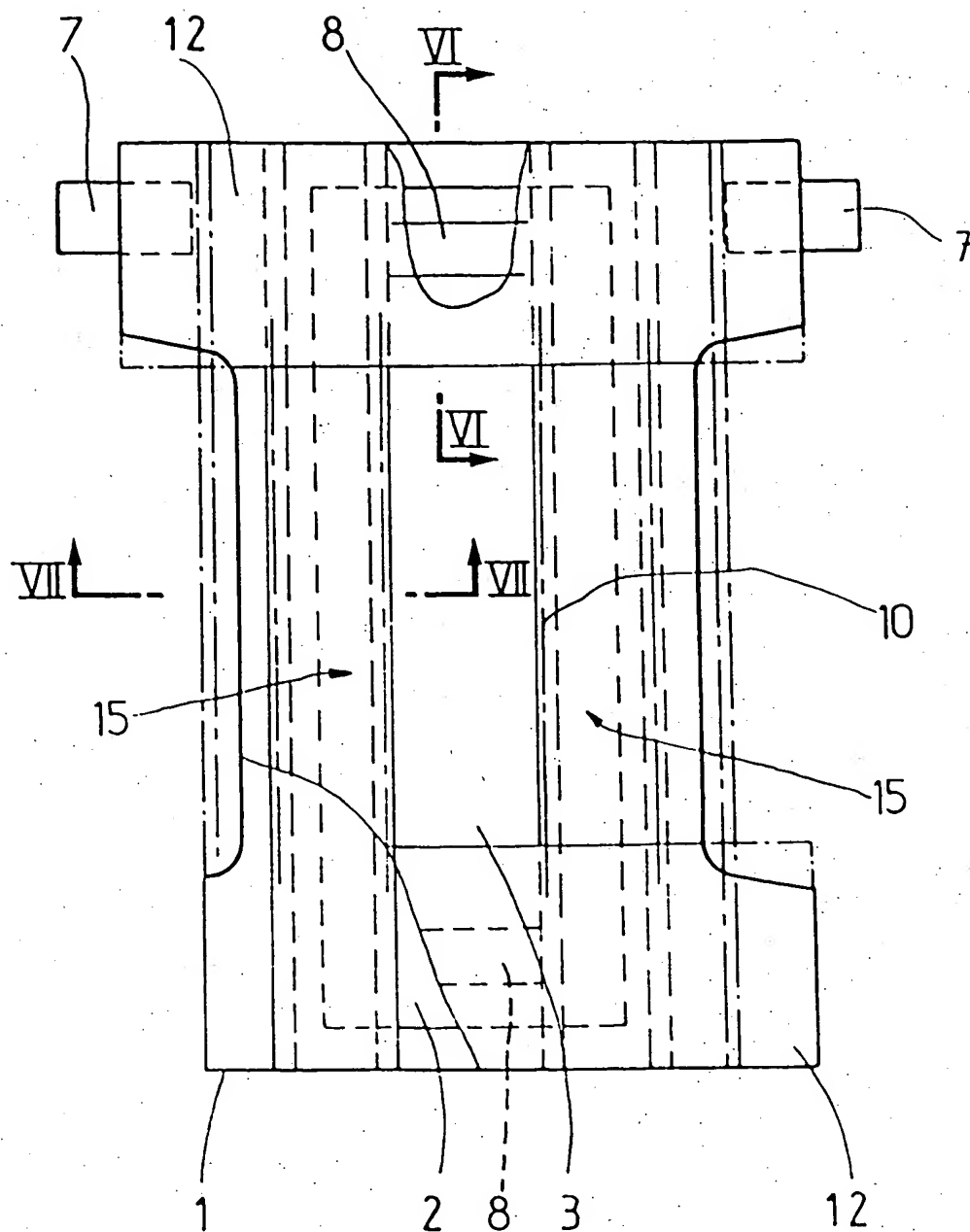
FIG.5

FIG.6

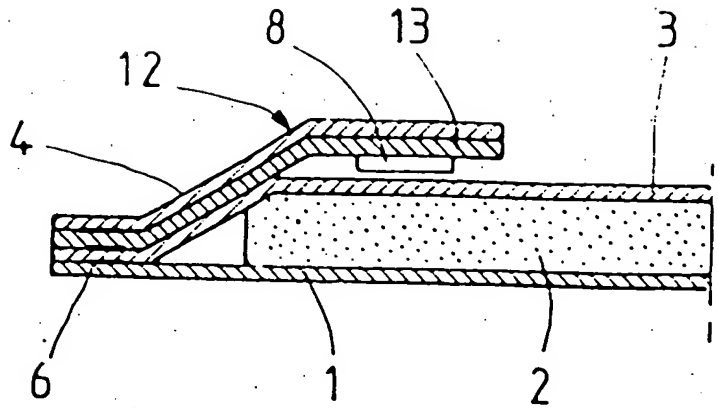


FIG.7

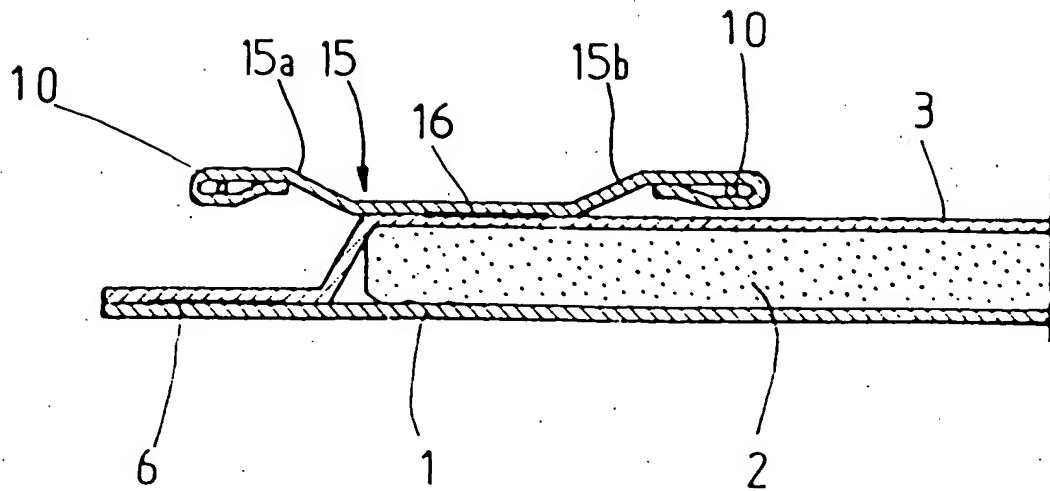


FIG.8

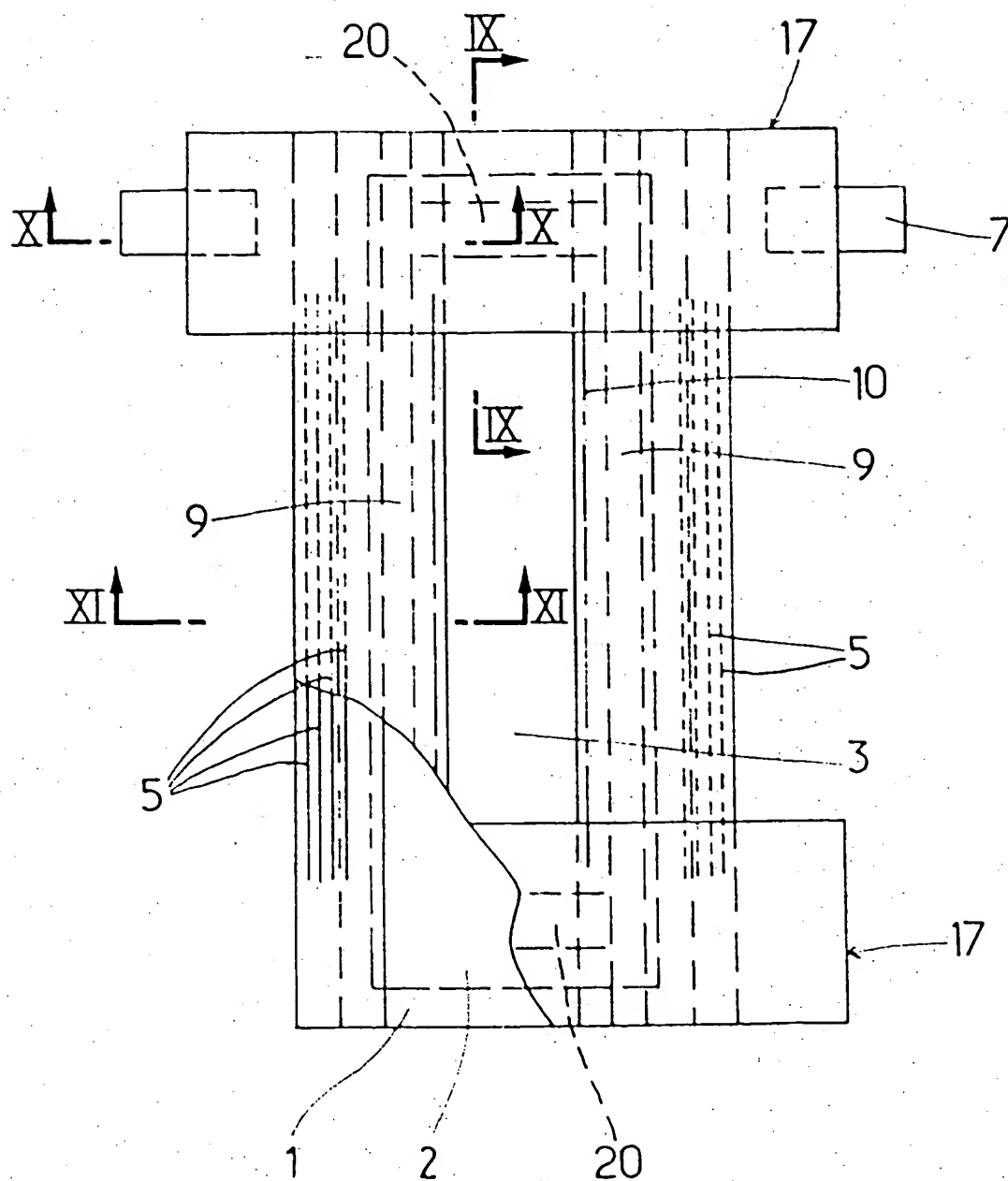


FIG.9

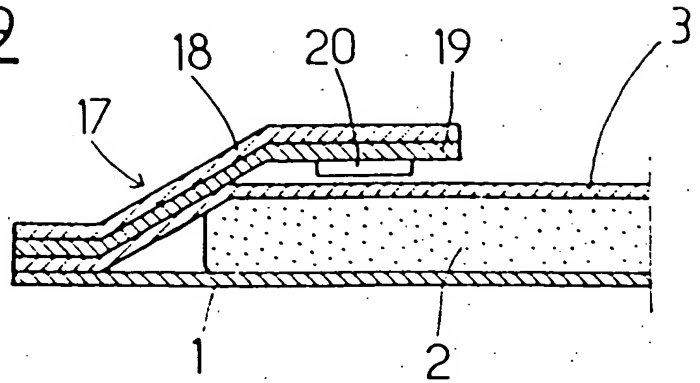


FIG.10

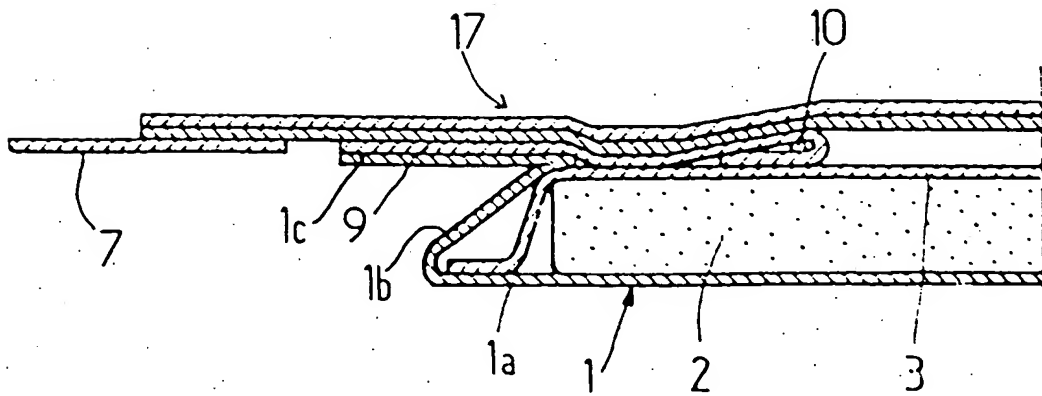


FIG.11

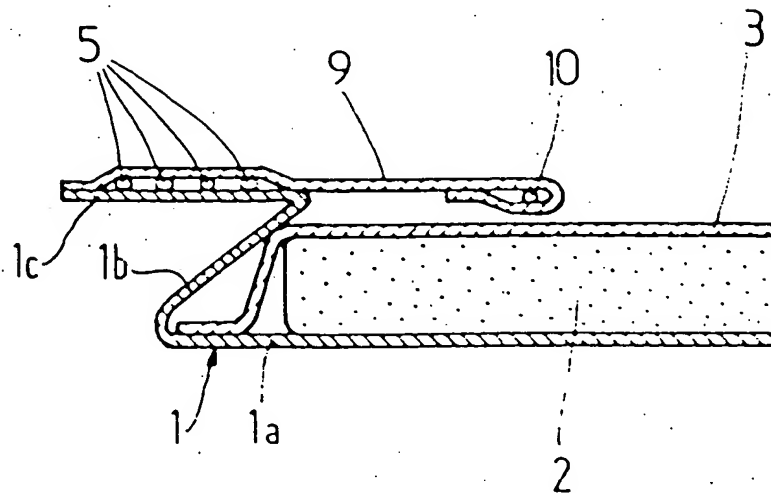


FIG.12

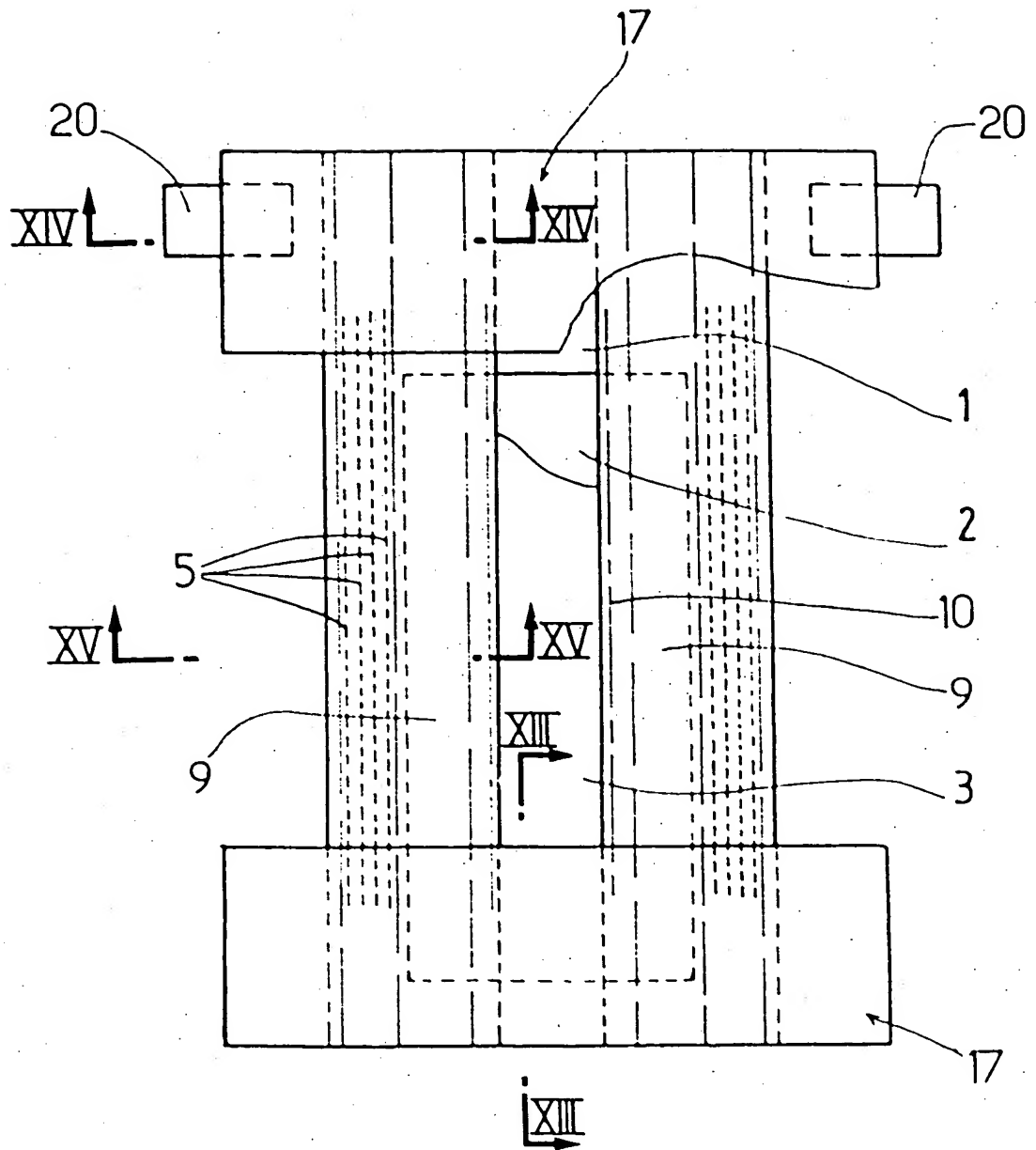
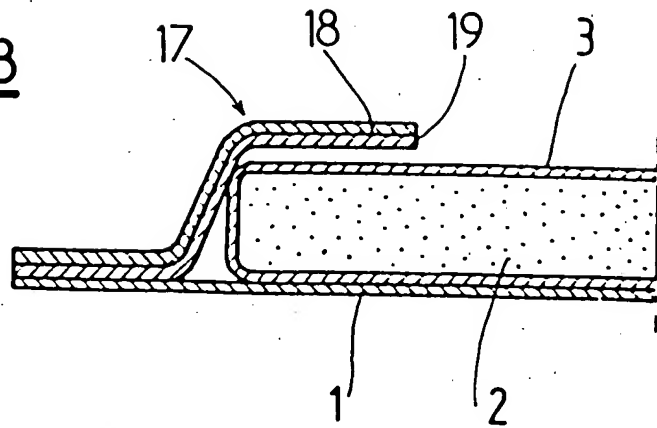
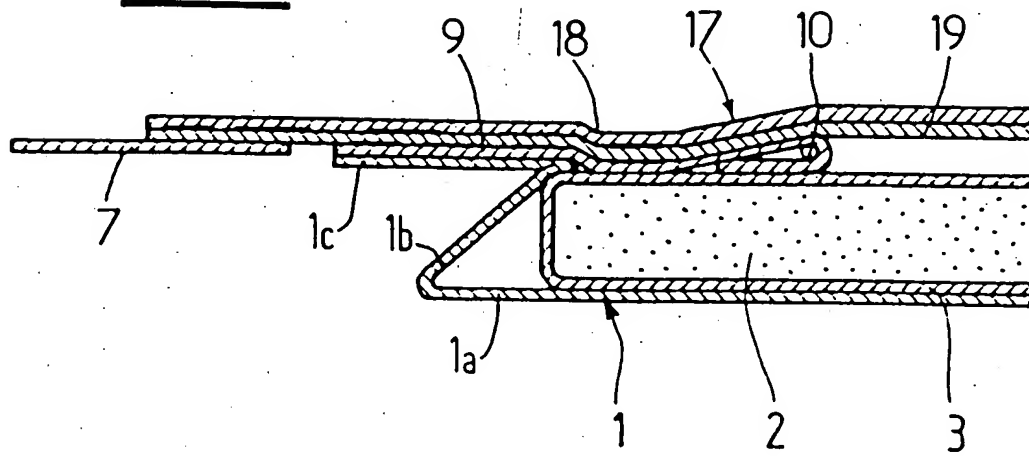
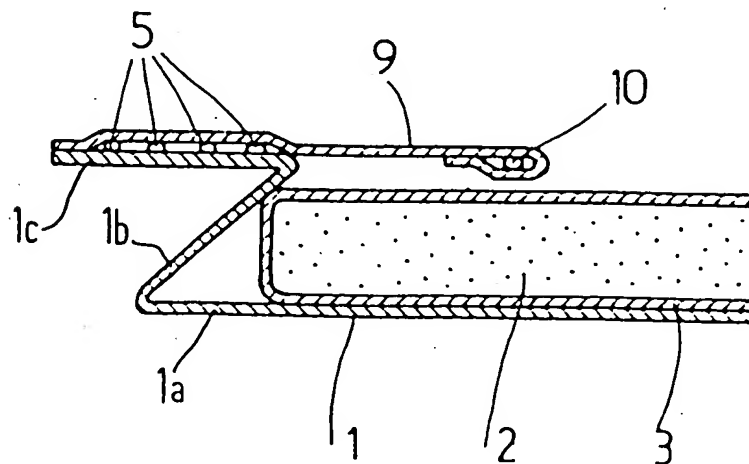


FIG.13FIG.14FIG.15

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FR 92/00789

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. 5 A61F13/15

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl. 5 A 61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE, C, 871 731 (S.O.M.A.G.E.T.I.) 26 March 1953 see the whole document ---	1-6, 8, 10
Y	EP, A, 0 263 720 (THE PROCTER & GAMBLE COMPANY) 13 April 1988 see figures ---	1-6, 8, 10
Y	FR, A, 2 231 329 (STILLE-WERNER A.B.) 27 December 1974 see figures 1, 4, 6 ---	1-3, 5, 6, 8, 10
Y	FR, A, 2 425 205 (CONSORTIUM GENERAL TEXTILE) 7 December 1979 see figures 1-4 ---	1-3, 5, 6, 8, 10
A	EP, A, 0 346 477 (UNI-CHARM CORPORATION) 20 December 1989 see figures 6-8 ---	7
	---	-/--

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"A" document member of the same patent family

Date of the actual completion of the international search

23 November 1992 (23.11.92)

Date of mailing of the international search report

27 November 1992 (27.11.92)

Name and mailing address of the ISA/

European Patent Office
Facsimile No.

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/FR 92/00789

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB, A, 2 142 541 (THE PROCTER & GAMBLE COMPANY) 23 January 1985 see abstract	9
A	EP, A, 0 376 022 (THE PROCTER & GAMBLE COMPANY) 4 July 1990 see figures 2,3 -----	1-3

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. FR 9200789
SA 63676**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information. 23/11/92

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-C-871731		None	
EP-A-0263720	13-04-88	AU-B- 614065	22-08-91
		AU-A- 7950287	14-04-88
		DE-A- 3775161	23-01-92
		JP-A- 63182401	27-07-88
		US-A- 4795454	03-01-89
FR-A-2231329	27-12-74	AU-A- 6964674	04-12-75
		BE-A- 815786	16-09-74
		DE-A- 2426744	09-01-75
		JP-A- 50049040	01-05-75
		NL-A- 7407445	06-12-74
FR-A-2425205	07-12-79	US-A- 4210143	01-07-80
EP-A-0346477	20-12-89	JP-A- 1068503	14-03-89
		JP-B- 3080502	25-12-91
		CA-A- 1279152	22-01-91
		GB-A,B 2216393	11-10-89
		WO-A- 8902228	23-03-89
GB-A-2142541	23-01-85	US-A- 4597760	01-07-86
EP-A-0376022	04-07-90	AU-A- 4697089	28-06-90
		JP-A- 3136653	11-06-91
		US-A- 5026364	25-06-91

RAPPORT DE RECHERCHE INTERNATIONALE

Demande internationale No

PCT/FR 92/00789

I. CLASSEMENT DE L'INVENTION (si plusieurs symboles de classification sont applicables, les indiquer tous) ?

Selon la classification internationale des brevets (CIB) ou à la fois selon la classification nationale et la CIB

CIB 5 A61F13/15

II. DOMAINES SUR LESQUELS LA RECHERCHE A PORTE

Documentation minimale consultée¹

Système de classification

Symboles de classification

CIB 5

A61F

Documentation consultée autre que la documentation minimale dans la mesure où de tels documents font partie des domaines sur lesquels la recherche a porté

III. DOCUMENTS CONSIDERES COMME PERTINENTS¹⁰

Catégorie *	Identification des documents cités, avec indication, si nécessaire, ¹² des passages pertinents ¹³	No. des revendications visées ¹⁴
Y	DE,C,871 731 (S.O.M.A.G.E.T.I.) 26 Mars 1953 voir le document en entier ---	1-6,8,10
Y	EP,A,0 263 720 (THE PROCTER & GAMBLE COMPANY) 13 Avril 1988 voir figures ---	1-6,8,10
Y	FR,A,2 231 329 (STILLE-WERNER A.B.) 27 Décembre 1974 voir figures 1,4,6 ---	1-3,5,6, 8,10
Y	FR,A,2 425 205 (CONSOTIUM GENERAL TEXTILE) 7 Décembre 1979 voir figures 1-4 ---	1-3,5,6, 8,10
	-/-	

* Catégories spéciales de documents cités:¹¹

"A" document définissant l'état général de la technique, non considéré comme particulièrement pertinent

"E" document antérieur, mais publié à la date de dépôt international ou après cette date

"L" document pouvant jeter un doute sur une revendication de priorité ou cité pour déterminer la date de publication d'une autre citation ou pour une raison spéciale (telle qu'indiquée)

"O" document se référant à une divulgation orale, à un stage, à une exposition ou tous autres moyens

"P" document publié avant la date de dépôt international, mais postérieurement à la date de priorité revendiquée

"T" document antérieur publié postérieurement à la date de dépôt international ou à la date de priorité et n'appartenant pas à l'état de la technique pertinent, mais cité pour comprendre le principe ou la théorie constituant la base de l'invention

"X" document particulièrement pertinent; l'invention revendiquée ne peut être considérée comme nouvelle ou comme impliquant une activité inventive

"Y" document particulièrement pertinent; l'invention revendiquée ne peut être considérée comme impliquant une activité inventive lorsque le document est associé à un ou plusieurs autres documents de même nature, cette combinaison étant évidente pour une personne du métier.

"A" document qui fait partie de la même famille de brevets

IV. CERTIFICATION

Date à laquelle la recherche internationale a été effectivement achevée

23 NOVEMBRE 1992

Date d'expédition du présent rapport de recherche internationale

27.11.92

Administration chargée de la recherche internationale

OFFICE EUROPEEN DES BREVETS

Signature du fonctionnaire autorisé

ARGENTINI A.

III. DOCUMENTS CONSIDERES COMME PERTINENTS¹⁶(SUITE DES RENSEIGNEMENTS INDIQUEES SUR LA
DEUXIEME FEUILLE)

Categorie *	Identification des documents cités, ¹⁶ avec indication, si nécessaire des passages pertinents ¹⁷	No. des revendications visées ¹⁸
A	EP,A,0 346 477 (UNI-CHARM CORPORATION) 20 Décembre 1989 voir figures 6-8 ---	7
A	GB,A,2 142 541 (THE PROCTER & GAMBLE COMPANY) 23 Janvier 1985 voir abrégé ---	9
A	EP,A,0 376 022 (THE PROCTER & GAMBLE COMPANY) 4 Juillet 1990 voir figures 2,3 -----	1-3

**ANNEXE AU RAPPORT DE RECHERCHE INTERNATIONALE
RELATIF A LA DEMANDE INTERNATIONALE NO.**

FR 9200789
SA 63676

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche internationale visé ci-dessus.

Lesdits membres sont contenus au fichier informatique de l'Office européen des brevets à la date du

Les renseignements fournis sont donnés à titre indicatif et n'engagent pas la responsabilité de l'Office européen des brevets. 23/11/92

Document brevet cité au rapport de recherche	Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
DE-C-871731		Aucun	
EP-A-0263720	13-04-88	AU-B- 614065 AU-A- 7950287 DE-A- 3775161 JP-A- 63182401 US-A- 4795454	22-08-91 14-04-88 23-01-92 27-07-88 03-01-89
FR-A-2231329	27-12-74	AU-A- 6964674 BE-A- 815786 DE-A- 2426744 JP-A- 50049040 NL-A- 7407445	04-12-75 16-09-74 09-01-75 01-05-75 06-12-74
FR-A-2425205	07-12-79	US-A- 4210143	01-07-80
EP-A-0346477	20-12-89	JP-A- 1068503 JP-B- 3080502 CA-A- 1279152 GB-A,B 2216393 WO-A- 8902228	14-03-89 25-12-91 22-01-91 11-10-89 23-03-89
GB-A-2142541	23-01-85	US-A- 4597760	01-07-86
EP-A-0376022	04-07-90	AU-A- 4697089 JP-A- 3136653 US-A- 5026364	28-06-90 11-06-91 25-06-91

EPO FORM P0072

